Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1 - 16. (Canceled)

17. (New): A data recording method for recording data on a recording medium comprising steps of:

forming a data block organized as a plurality of first data columns arranged in a plurality of rows, each first data column comprising a plurality of bytes;

for each row in said data block, adding a plurality of second data columns to include an error correcting code parity comprising a plurality of bytes;

rearranging an order of bytes of said first data columns according to two or more rearranging rules, each rearranging rule being applied to one of said first columns, thereby rearranging bytes comprising each of said first columns in said data block to produce a rearranged data block; and

recording said rearranged data block on a recording medium.

18. (New): The data recording method according to claim 17, wherein each of said first data columns includes an error correcting code.

19. (New): The data recording method according to claim 17, wherein said step of rearranging includes rearranging said order of said of bytes exclusive of bytes that relate to identification information.

20. (New): The data recording method according to claim 17, wherein said step of rearranging includes applying a first rearranging rule to a plurality of said first data columns, whereby said first rearranging rule is applied to a plurality of said rows.

21. (New): The data recording method according to claim 17, wherein one of said rearrangement rules is an M-series rule.

22. (New): The data recording method according to claim 17, wherein one of said rearranging rules is an arithmetic progression.

23. (New): The data recording method according to claim 17, wherein said step of rearranging is performed on groups of bytes, wherein a group of bytes in a first data column is rearranged as a unit.

24. (New): The data recording method according to claim 17, wherein said step of recording data comprises a step of modulating said bytes, wherein rearranged data in said first columns are modulated.

25. (New): The data recording apparatus of claim 17 wherein said record medium is a digital versatile disk (DVD) recording medium.

26. (New): The data recording apparatus of claim 25 wherein said data block is an ECC (error correction code) data block.

27. (New): The data recording apparatus of claim 26 wherein said ECC data block includes PI (parity of inner code) data and PO (parity of outer code) data, wherein said PI data is rearranged by said signal processing circuit.

28. (New): A data reproducing method of reproducing data recorded on a record medium, comprising the steps of:

forming a data block including a plurality of first data columns stacked in a plurality of rows, each first data column including a plurality of first bytes that were previously interleaved according to first rearranging rules;

rearranging an order of said first bytes of said first data columns according to second rearranging rules each of which is applied to one of said first data columns, wherein there are at least two first rearranging rules and at least two second rearranging rules so that rearranging of said first bytes is performed by applying at least two different rearranging rules to said data block; and

executing an error correcting processing to data rearranged.

29. (New): A data recording apparatus, comprising:

a circuit for forming a data block including a plurality of first data columns stacked in a plurality of rows, each first data column including a plurality of first bytes and an error correcting code parity;

a signal processing circuit for rearranging an order of said first bytes according to a plurality of rearranging rules each of which is applied to one of said first columns, rearranging of said first bytes in said data block being performed by using at least two different rearranging rules;

a modulation circuit for modulating a data column in which an order of bytes is rearranged by said signal processing circuit; and

means for recording data column modulated on a record medium.

30. (New): The data recording apparatus of claim 29 wherein said record medium is a digital versatile disk (DVD) recording medium.

31. (New): The data recording apparatus of claim 30 wherein said data block is an ECC (error correction code) data block.

32. (New): The data recording apparatus of claim 31 wherein said ECC data block includes PI (parity of inner code) data and PO (parity of outer code) data, wherein said PI data is rearranged by said signal processing circuit.

33. (New): A data reproducing apparatus, comprising:

a demodulating circuit for demodulating data recorded on a record medium;

a signal processing circuit for, on a plurality of data columns demodulated by said demodulating circuit, rearranging an order of bytes of said data columns according to rearranging rules each of which is applied to one of said data columns, rearranging of said bytes being performed by applying at least two different rearranging rules to said data columns; and

a circuit for correcting an error included in data in which an order of bytes is rearranged by said signal processing circuit.